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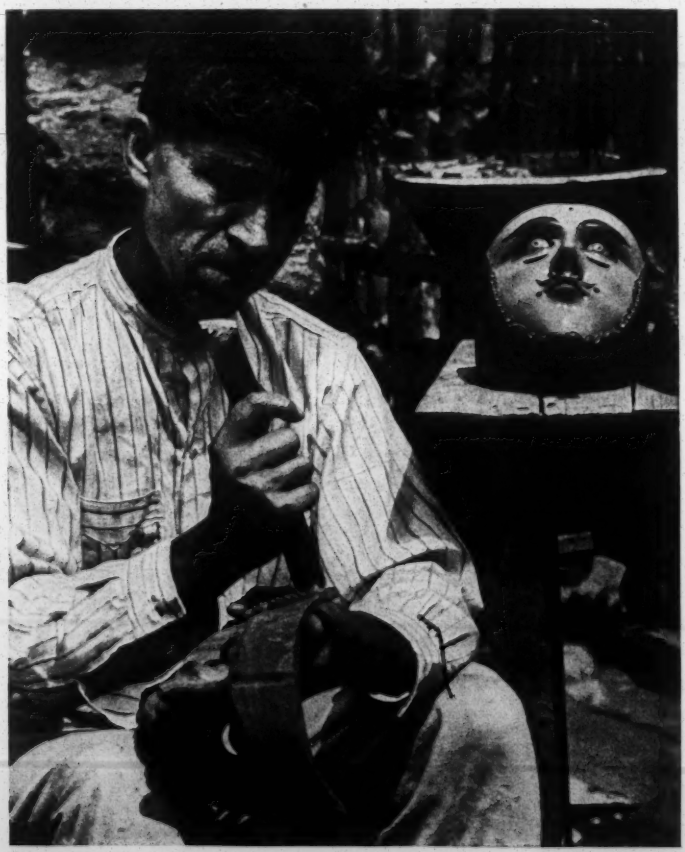

RICHARD H. STEWART

HOURS OF UNSMILING LABOR GO INTO THE GAY FIESTA MASKS OF MEXICO (Bulletin No. 1)

Bulletin No. 1, May 9, 1949

Rain Means Life to Mexico's Farmers

MEXICO and the United States, next-door neighbors, are as different as though they were half a world apart. The meandering brown current of the Rio Grande separates two lands which differ in just about everything from seasons to seasoning.

Most of Mexico has only two seasons—wet and dry. Now, while people in the United States are enjoying spring, Mexicans are readying for the rainy season. It usually starts late in May and the rains fall in heavy showers once or twice a day until September.

Compared with United States

The rains mean much to the 22,000,000 Mexicans—especially to the 70 per cent of them who live by farming. The average farmer in the United States works in a climatic Utopia compared to his neighbors south of the border. Less than one out of every ten arable acres in Mexico receives natural rainfall. A slightly larger percentage of the arable land is irrigated. The remainder of the productive land—about seven out of every ten acres—is semiarid.

The heart-rending task of Mexican farmers in wringing a living for their nation under these conditions is made worse by the fact that less than one-eighth of the country's 758,258 square miles is usable for agriculture. Mexico's entire area equals all the states east of the Mississippi except New England and New York, but the land capable of being farmed amounts to less than the area of Wisconsin. The production of corn, the principal crop, totals only one-sixth the amount Iowa raises.

Yet, far from being surly and resentful at his lot, the Mexican farmer —he who until recently was called a peon, a virtual serf—is one of God's friendliest and most likable creatures. A hard life leaves him not resigned but a philosopher. He says the day is for work, but with night comes music, and fiesta (illustration, cover) is never far ahead. His creative energies spill over into the handicrafts at which no one excels him and in which he has influenced the arts of the world.

Capital City a Great Contrast

He stays with the land. If he goes to the great city, he finds it a great solitude. He knows all men are made of the same clay and that his small village (illustration, next page) gets equal treatment from the sun. If he is lucky enough to own a little land, he asks nothing more. He fills his house with the light of many children, his "steps to heaven." He has a saying for the less fortunate: "Come home to be happy. Where one was born, every blade of grass pleases."

Nothing could be farther removed from the primitive simplicity of these farmers—most of whom are all or part Indian—than cosmopolitan Mexico City (Mexico, D.F.). Shanghai offers no greater contrast with its surroundings. The Distrito Federal (federal district), in which the

ENTERED AS SECOND CLASS MATTER APRIL 27, 1943, POST OFFICE, WASHINGTON, D. C., UNDER ACT OF MARCH 3, 1879.
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LUIS MARDEN

ON THE SLOPES OF SIERRA MADRE ORIENTAL, JALAPA IS HIGH ENOUGH TO BE COOL AND ON THE RIGHT SIDE OF THE MOUNTAINS FOR RAIN

The capital of the Mexican State of Veracruz, Jalapa Enriquez, to give the city its full name, is in the zone known as the "tierra templada," the temperate land. At 4,300 feet above sea level, it is still 14,400 beneath the symmetrical summit of Orizaba volcano (Citlaltepec), Mexico's highest mountain and the third-highest in North America. Hernan Cortés marched through a pass near here in the epic conquest which brought Spanish civilization to the Indians of Mexico (Bulletin No. 1).

New Steel Age Looms for North Norway

NORWAY has long exported its iron ore, but now it plans to keep some of it at home to feed a big and modern iron and steel works near the land of the midnight sun.

Just south of the Arctic Circle, the small seaport of Mo i Rana is undergoing an amazing transformation into Norway's "northern Pittsburgh." Maps usually list the town simply as Mo. The "i Rana" portion of its name means "in Rana" district. This distinguishes it from another Mo farther south in Norway.

Hydroelectric power for the plant, bombproof chambers for the power generators, and railway tunnels cut deep inside the mountains are a few arresting features of the project.

Romans Started It

With a working harbor and plenty of iron near by, and a northbound railway already reaching past Mo, this gateway to Norway's far north finds itself the center of a potential steel age that recalls stirrings of long ago.

Norway's first Iron Age lasted from the Roman era well into medieval times. Its cultural developments started with the expansion of Roman influence in northern Europe, and the importation of raw iron and fabricated iron objects.

Later, following the discovery that native bogs were rich in iron deposits, the early Norwegians began making their own iron products. From iron smelted in primitive blast furnaces, they created a surprising number of useful articles, from kettles and other kitchen utensils to sickles and axes.

The iron ax, which made possible the building of more advanced boats, helped lay the foundation for Norway's seagoing activities, still a major factor in the nation's economic life.

Modern Methods Used

Some Norwegian iron works, smelting by charcoal, operated during the 17th and 18th centuries. A large-scale modern industry, however, has been handicapped by lack of convenient coal for power, and the difficulty of extracting iron from generally low-grade ores. Hence Norway has exported the ores, and imported most of its needs in pig iron and steel.

The current enterprise at Mo has the advantage of two modern developments that offset the old limitations. One is abundant hydroelectric power which more than compensates for the lack of coal.

The other is the discovery by Norwegian scientists, after fifteen years of experimentation, of a process for obtaining satisfactory ore concentrate from the near-by iron mine of Dunderland. This mine, now government owned, is said to have a billion tons in reserve.

The new plant, under combined government and private ownership, will be Norway's largest industrial establishment, according to present plans. Its annual output is expected eventually to amount to more than

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city lies, has an estimated population of about two and a fourth million.

Half of Mexico's people live within 200 miles of the capital on the central plateau where living conditions are best. Though in a tropical latitude, this plateau's 5,000-to-8,000-foot elevation makes it pleasantly cool the year round. The temperature often varies more from day to night than it does from January to July.

Widening toward the north, the central plateau becomes lower, hotter, and drier. To the south it disappears in the jungles of Central America. Along the coasts, humid lowlands are drenched with rain. Coastal plains (illustration, inside cover) are narrow. On the Pacific the Sierra Madre Occidental rises close to the shore.

Because of its geographic diversity, Mexico raises many crops. By value, they are corn, cotton, sugar cane, wheat, henequen, bananas, sesame, tomatoes, and coffee. Other products include chicle for chewing gum, rubber, lumber, and beans for the average Mexican's staff of life.

Only four countries in the Americas are larger than Mexico in size, only two greater in population. Its east-west stretch from Baja California to Quintana Roo spans the meridians from California to Florida. Hinged at Ciudad Juarez (opposite El Paso, Texas) and flopped north, Mexico would reach the Canadian border.

NOTE: Mexico is shown on the National Geographic Society's map of Countries of the Caribbean. Write the Society's headquarters, Washington 6, D. C., for a price list of maps.

See also "Down Mexico's Rio Balsas," in the *National Geographic Magazine* for August, 1946*; "Paricutín, the Cornfield That Grew a Volcano," February, 1944*; "Baja California Wakes Up," August, 1942*: "On the Cortés Trail," September, 1940*; and "Down the Rio Grande," October, 1939. *(Issues marked with an asterisk are included on a special list of Magazines available to teachers in packets of ten for $1.00.)*

LUIS MARDEN

THOUGH NOW OFFICIALLY ABOLISHED, SIESTA TIME FINDS FEW PERSONS STIRRING IN PEROTE

Bulletin No. 3, May 9, 1949

250-Year-Old Cahokia Was Hub of Early West

TO CAHOKIA later in the month will come dignitaries of many states, historians and scholars, and a wave of tourists with an interest in America's early days. The oldest town in Illinois, like Williamsburg, Virginia, this spring celebrates its 250th anniversary.

Behind Mississippi levees, Cahokia covers a portion of the river's flood plain across from St. Louis, Missouri, long known as the American Bottom. It is a crossroads hamlet of barely 500 people today.

First White Settlement in Mississippi Valley

Landmarks that stand out most are definitely of the 20th century—an enormous power plant that pulverizes and burns low-grade Illinois coal, and a college for technical training in aeronautics. The town lies at the southern outskirts of highly industrialized East St. Louis.

Cahokia was founded in 1699 as an Indian mission station by French priests from Quebec. It became the first permanent white settlement in the Mississippi Valley. No match for Williamsburg in venerable buildings and restorations, it has historic landmarks as well as modern ones.

In its early decades the outpost shipped cargoes of flour, lumber, and pelts down the river to New Orleans, a settlement 19 years its junior. It retained its French character long after passing from French to British hands in 1765 with the rest of the Northwest Territory, and from British to American hands in 1778.

Pontiac, Indian chief who fought two British expeditions in the Territory prior to 1765, was shot down in Cahokia in 1769 by an Indian agent of the English.

Cahokia's structures of historic interest today include the church completed in 1799. Now a parish meeting hall, its original hand-hewn logs are hidden beneath clapboards. It stands beside its impressive successor church in the center of the village.

Courthouse Had Strange History

A second landmark is the Jarrot Mansion, oldest brick house in Illinois, built about 1800, with walls a foot and a half thick. A third is verandaed Cahokia Courthouse, built in 1760 by a French engineer.

In 1793 the Frenchman sold this log cabin for county use as a courthouse and jail. From 1809 to 1814, it was virtually the capitol of Illinois. Cahokia was then the seat of a big territory that reached to and beyond infant Chicago—an area that is now 80 counties.

Abandoned after 1814, the cabin served a turn as a saloon. It made a trip across the river in 1904, serving as a concession novelty at the St. Louis world fair. Then it went to Chicago for the 1906 world fair. It remained in Chicago's Jackson Park until restored by the state to its original site in Cahokia in 1939.

It was 1,000 to 1,500 years ago, archeologists believe, that Cahokia's environs became the site of a mighty religious center of the Mound Builders. Proof lies in the countless Indian mounds that rise on the

half a million tons of rolling steel and 180,000 tons of pig iron. By late 1953—the date set for opening production—it is predicted that the 3,000 inhabitants of Mo will have been multiplied by ten.

NOTE: Mo may be located on the Society's map of Europe and the Near East.

For additional information on Norway, see "Norway Cracks Her Mountain Shell," in the *National Geographic Magazine* for August, 1948; "The White War in Norway," November, 1945*; "Norway, an Active Ally," March, 1943*; "Country Life in Norway," April, 1939; and "Life in a Norway Valley," May, 1935.

See also, in the GEOGRAPHIC SCHOOL BULLETINS, February 28, 1949, "Figureheads Adorn New Norwegian Freighters" and "Gold Rush Lends Color to Bleak Lapland"; and "Rainy Skies Are Bergen's 'Usual' Weather," May 3, 1948.

A. B. WILSE

ONCE BEFORE THE NORWEGIANS BUILT AN INDUSTRIAL CITY FROM SCRATCH: RJUKAN

Waterfalls tumbling down this mountainside in southern Norway were harnessed in 1907 to create the energy for making calcium nitrate (fertilizer). Now Norway plans to put her ample water power to work producing steel at Mo i Rana, hundreds of miles north of Rjukan.

The World's Ten Largest Islands

Australia, sometimes thought of as an island, is one of the seven continents. Its mainland area is 2,948,366 square miles. In square miles, the areas of the world's ten largest islands follow:

NAME	OWNERSHIP	OCEAN LOCATION	AREA
1. Greenland	Denmark	North Atlantic	827,300
2. New Guinea	Neth., Australia	Southwest Pacific	316,861
3. Borneo	Neth., Gt. Br.	South China Sea	290,012
4. Madagascar	France	Indian	228,642
5. Baffin	Canada	Arctic	197,754
6. Sumatra	Netherlands	Indian	167,620
7. Honshu	Japan	Pacific	89,009
8. Great Britain	Great Britain	Atlantic	84,186
9. Victoria	Canada	Arctic	80,340
10. Ellesmere	Canada	Arctic	77,392

Bulletin No. 4, May 9, 1949

Versatile Earthworm Is Plowman and Zoo Food

IN THE spring a robin's fancy lightly turns to thoughts of worms—the long wriggling earthworms that spring rains bring out of hiding.

So does the fancy of the platypuses at the Bronx Zoo in New York City, and of the boy with the fishing pole. So, nowadays, does the fancy of the farmer, the truck-patch owner, and the backyard gardener if they know what's good for their crops.

Worm Farms Supply Growing Demand

Creatures with feathers, fins, and duckbills have always fancied the humble earthworm for its zestful taste. Human beings, to whom the worm is definitely not appetizing, in general seem to have been slow to see even its other merits. As a tiller and conditioner of the soil, the worm is an able assistant to the farmer and the gardener. Now that its value has been recognized, breeding earthworms for work as plowmen is a growing business.

America can now point to a dozen or more sizable commercial earthworm farms. In addition, scores of individual breeders are supplying worms to landowners who want to make barren acres fruitful. The market for these wriggling farmers' helpers reaches far abroad.

Blind, deaf, and voiceless, the earthworm feels, tunnels, and eats. Its chief food is the earth itself. The worm brings air into the soil and stirs it up, "cultivating" it to a depth of six feet. It is a perfect companion to growing plant life because it plows close to roots without doing any damage, makes storage channels for rainwater, and gives roots space to grow down.

In ground where there is little cover in the form of mulch or growing plants, the earthworm population gradually dwindles. Worms die if the temperature drops sharply and catches and freezes them near the surface. They drown if soaked too long in water, and hence, in a heavy rain, they seek the surface to escape from their subterranean bog.

Range from Two Inches to Ten Feet

In rich ground, earthworms may number a million to an acre, and cast as much as 20 tons of digested earth residue to the surface each year. Scientists believe that the gradual sinking of stones and rocks in fields is caused by the constant tunneling and casting of earthworms. The sunken walls and artifacts of the Roman era, which have been excavated at many points in England in recent years, are regarded as good examples of earthworm action.

Earthworms are found almost everywhere except in frigid climates and in desert sands. Man has distributed them to many areas on the roots of transported plants. Species range from two-inch miniatures to the *Megascolides* which can live only in the Bass River valley section of southeastern Australia. The *Megascolides* averages four to six feet long, and specimens measuring more than ten feet have been found.

Australia's talent for growing worms is further proved by the presence

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American Bottom. Others across the river gave St. Louis its nickname —the Mound City (illustration, below).

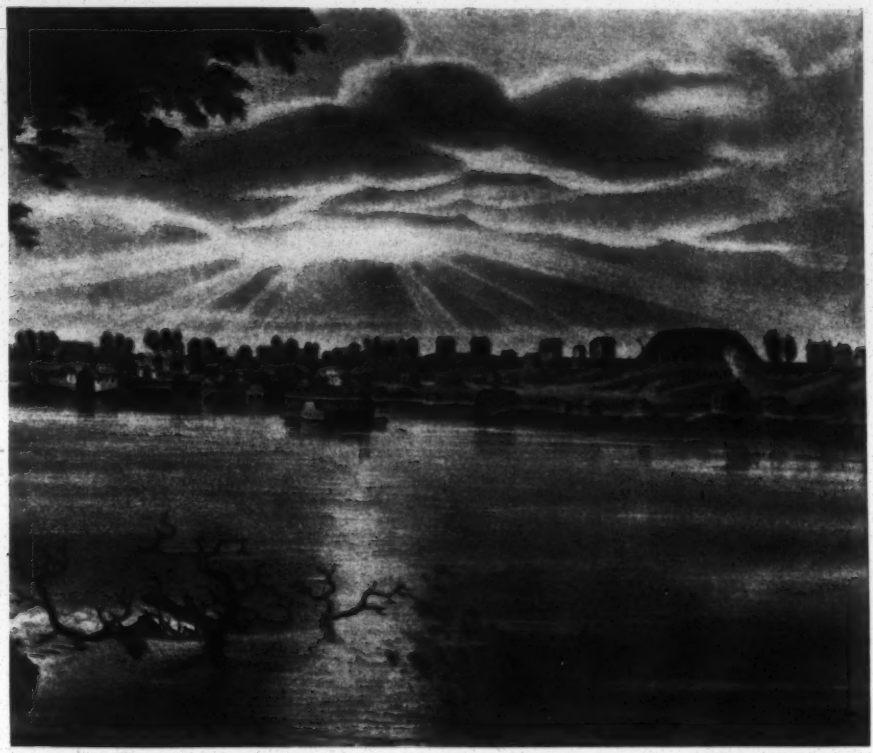
A few miles northeast of Cahokia, the 144-acre Cahokia Mounds State Park contains scores of these Indian earthworks surrounding the largest man-made earthen mound in the country. Ceramics, skeletons, flint spades, bone needles, and copper weapons have been found in the Cahokia mounds. Specimens are exhibited in a museum within the park.

The big mound, larger than the great pyramid of Cheops in Egypt, covers 16 acres, having a rectangular base 1,000 feet long and 720 feet wide. It rises in four terraces to a summit 100 feet high. Because Trappists in 1809 built a short-lived monastery on its top, the name Monks Mound survives.

Monks Mound may have taken 300 years to build. It is estimated to represent as much as 1,000 Indians could do in five years of steady work, carrying dirt in their primitive baskets.

NOTE: The mounds region may be located on the Society's map of the North Central United States.

For additional information, see "Pyramids of the New World," in the *National Geographic Magazine* for January, 1948; and "Illinois, Crossroads of the Continent," May, 1931.



DAVID I. BUSHNELL, JR.

THE RISE AT THE RIGHT HELPED GIVE EARLY ST. LOUIS THE NICKNAME "MOUND CITY"

Before the white man and before the Indian, the Mound Builders settled in the St. Louis-Cahokia area and built scores of earthworks. This one, as well as others on the Missouri side of the Mississippi, has been leveled by the city, but many in Illinois remain.

Britain Maintains Gibraltar's Ape Guard

ONLY a thin simian line holds strategic Gibraltar for Britain these days, or so tradition has it.

The legend is that "when the apes go, the British go, too," and the celebrated Barbary apes that inhabit the famous 1,350-foot Rock have been declining in numbers of late.

British Always Remember Prophecy

Gibraltar's apes, the only members of the monkey family living wild in all Europe, have roamed the cactus-grown upper reaches of the Rock for centuries—perhaps since Roman times. Early in the 19th century there were 100 or more. They have dwindled alarmingly close to the disappearing point several times since.

The British, however, are very conscious of the superstitious prophecy. Each time the size of the ape colony has fallen too low, they have reinforced this unique garrison.

Most of the few apes at large on the rock fortress today are replacements brought in from north Africa after World War II. Gibraltar in wartime was a bristling military citadel where monkeys on the loose could have caused untimely confusion and serious damage. As war clouds gathered, the free "Gib" apes were captured and "interned."

The powerful, tailless creatures are not actually apes at all. They are macaques. The size of a big Airedale, they are Gibraltar's only wild animals. They are common to Barbary, the region south across the Strait of Gibraltar in north Africa.

Scientists differ as to how the Barbary apes first came to Gibraltar. One theory is that they probably came across to Europe in prehistoric times when the Mediterranean was a lake and the Strait of Gibraltar was dry land. A more recent belief is that they were brought over by the Romans or the Moors.

An explanation of their presence in the fortress is that pet macaques brought from north Africa have frequently escaped or been freed from captivity by their owners and have found hospitality and sustenance in the labyrinths and vegetation of the Rock.

Joined the Army in 1856

Even a few dozen Barbary apes running wild on Gibraltar could make the Rock seem infested, so constant were their acts of mischief at times. There are many stories of their destructive or playful descents, always by daylight, on shops, dwellings, barracks, gardens, and on civilian and military inhabitants of the town at the base of the Rock. They have even intimidated the dogs and cats of the community.

In a noble experiment, the British gave the Gibraltar apes official protection, beginning in 1856. They were made members of the garrison, given food rations, and placed under a sergeant known as the "Officer-in-charge, Rock Apes." On one historic occasion, they earned their keep by giving noisy warnings of an attempted surprise attack by the Spaniards.

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there of the duckbilled platypus. This strange beast has not been found native to any other country, and the two which have been living for two years in New York are the only ones that have managed to exist for more than four months away from their native land. The platypus simply can't live without its pound or so of worms a day, and Australia's worm crop literally fills the bill.

When three platypuses sailed from Australia to New York early in 1947, the staff at the Bronx Zoo got busy to make a suitable home for them. In the cellar of the lion house they developed the largest earthworm nursery in the world (illustration, below). Today it is virtually the sole support of the only platypuses outside Australia, raising enough wriggling earthworms to supply the 25,000 the furry immigrants require every month. The third playtpus died four months after it arrived in New York, but the remaining two seem contented with their daily fare of native American earthworms, supplemented by such delicacies as egg custard and crayfish.

NOTE: For additional information, see "Biggest Worm Farm Caters to Platypuses," in the *National Geographic Magazine* for February, 1949.

A BRONX ZOO PLATYPUS KEEPER TAKES A LOOK AT THE FOOD SUPPLY FOR HIS CHARGES

Very particular about what he eats, the platypus is a problem to his keeper. To provide plenty of his favorite dish—earthworms—long pits in the lion house cellar have been turned into a nursery where the worm crop is raised. An 18-inch soil foundation is frosted with six inches of elm leaves—the foliage the worm seems to prefer. This "truck garden" is an economy for the zoo as earthworms from commercial worm farms are expensive.

In general, however, these simian troops took advantage of their position by stealing and by damaging property and human dignity. The worst offenders were arrested and sometimes exiled to distant zoos. After 1880 their liberty was curtailed.

The leader of one band, caught stealing kits from the garrison, was given a close shave, head and face. His gang would have none of the barefaced scoundrel and greeted him with a shower of sticks and stones. Whereupon he took up quarters with the soldiers who had shaved him.

In 1874, when a flash fire broke out in the brush on the Rock, the apes escaped by skidding down the sloping side of one of Gibraltar's famous rain-water catchments (illustration, below). They bounced and slid several hundred feet in a few seconds—and later accepted military first aid for sprains, bruises, and abrasions.

Men who have explored the Rock and its caverns have commented that bodies or skeletons of Gibraltar apes are rarely found. They may be hidden deep in caves by living apes, or perhaps thrown into the sea.

NOTE: Gibraltar appears on the Society's map of Central Europe and the Mediterranean.

For additional information, see "The Rock of Gibraltar" (17 photographs), in the *National Geographic Magazine* for September, 1940*.

UNDERWOOD-STRATTON

FOR GIBRALTAR'S APES, A FIRE ESCAPE; FOR HUMAN RESIDENTS, A RAIN-WATER TRAP

The concrete-paved incline on the slope above the village catches rain water which is drained into cisterns and stored for a dry day. All drinking water on the rock fortress is collected in this way. About 50 acres of these catchments dot Gibraltar. The apes once found them useful as a speedy route out of a brush fire above. The village of Caleta gleams white between bay and cliff.